

**IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF ALABAMA
SOUTHERN DIVISION**

LAKEISHA CHESTNUT, et al.,

Plaintiffs,

v.

Civil Case No. 2:18-CV-907-KOB

JOHN H. MERRILL,

Defendant.

DECLARATION OF WILLIAM S. COOPER

WILLIAM S. COOPER, acting in accordance with 28 U.S.C. § 1746, Federal Rule of Civil Procedure 26(a)(2)(B), and Federal Rules of Evidence 702 and 703, does hereby declare and say:

I. INTRODUCTION

1. My name is William S. Cooper. I have a B.A. in Economics from Davidson College. As a private consultant, I currently serve as a demographic and redistricting expert for the Plaintiffs. I am compensated at a rate of \$150 per hour.

(a) Redistricting Experience

2. I have testified at trial as an expert witness on redistricting and demographics in federal courts in about 40 voting rights cases since the late 1980s. Four of these lawsuits resulted in changes to statewide legislative boundaries: *Rural West Tennessee African-American Affairs v. McWherter*, *Old Person v. Cooney*,

Bone Shirt v. Hazeltine, and *Alabama Legislative Black Caucus v Alabama*.

Approximately 25 of the cases led to changes in local election district plans.¹

3. During the 2010 redistricting cycle, five plans that I developed for local government clients were adopted – Bolivar County, Mississippi; Claiborne County, Mississippi; the City of Grenada, Mississippi; Sussex County, Virginia; and Wenatchee, Washington.

4. I served as a redistricting consultant in 2011 to the Miami-Dade County Commission and Board of Education. I currently serve as a consultant and expert witness for the City of Decatur, Alabama defendants in *Voketz v. City of Decatur*.

5. Since 2011, based in part on my testimony, five federal courts have found a Section 2 violation based on the first prerequisite (*Gingles* 1) pursuant to *Thornburg v. Gingles*, 478 U.S. 30 (1986); *Montes v. City of Yakima, Washington* (E.D. Wash. Aug. 22, 2014); *Pope v. Albany County, New York* (N.D.N.Y. Jan. 28, 2014; N.D.N.Y. Mar. 24, 2015); *NAACP v. Ferguson-Florissant School District, Missouri* (E. D. Mo. August 22, 2016); *Terrebonne Parish Branch NAACP et al. v. Jindal et al.* (M.D. La. July 27, 2017); and *Thomas v. Bryant* (S.D. Ms. Feb 16, 2019).

¹ I have served as an expert witness on demographics in non-voting trials. For example, in an April 2017 opinion in *Stout v. Jefferson County Board of Education* (Case no.2:65-cv-00396-MHH), a school desegregation case involving the City of Gardendale, Alabama, the court made extensive reference to my testimony.

6. In 2016, two redistricting plans that I developed on behalf of the plaintiffs for consent decrees in Section 2 lawsuits in Georgia were adopted– *NAACP v. Fayette County, Georgia* and *NAACP v. Emanuel County, Georgia*.

7. In February 2019, a plan I developed on behalf of the plaintiffs in *Thomas v. Bryant* (S.D. Ms. Feb. 26, 2019), involving Mississippi State Senate Districts 22 and 23 became the court-ordered remedial plan.

8. For additional historical information on my testimony as an expert witness and experience preparing and assessing proposed redistricting maps for Section 2 litigation, see a summary of my redistricting work attached as **Exhibit A**.

(b) Purpose of Report

9. The attorneys for the Plaintiffs in this case asked me to determine whether the African American population in Alabama is “sufficiently large and geographically compact”² to allow for the creation of two U.S. House majority-Black districts – one more than under the current 7-district plan (the “2011 Plan”).

10. In addition, for background, the attorneys asked me to review historical and current demographics (reported in the decennial Census and annual estimates published by the U.S. Census Bureau), as well as socioeconomic characteristics

² *Thornburg v. Gingles*, 478 U.S. 30, 50 (1986).

reported in the annual releases of the American Community Survey (“ACS”) for African Americans and non-Hispanic Whites.³

11. **Exhibit B** describes the sources and methodology I have employed in the preparation of this report.

(c) 2011 Board of Education Plan

12. The current 8-district Board of Education Plan (the “2011 BOE Plan”), which was adopted by the Alabama Legislature after the release of the 2010 Census, provides a useful backdrop for the *Gingles* 1 analysis here.⁴

13. The 2011 BOE Plan is shown in the map in **Figure 1** (on the next page). **Exhibit C-1** is a map of the 2011 BOE Plan prepared by the State.⁵

³ In this report, “Black” and “African American” are synonymous, as are “Latino” and “Hispanic”.

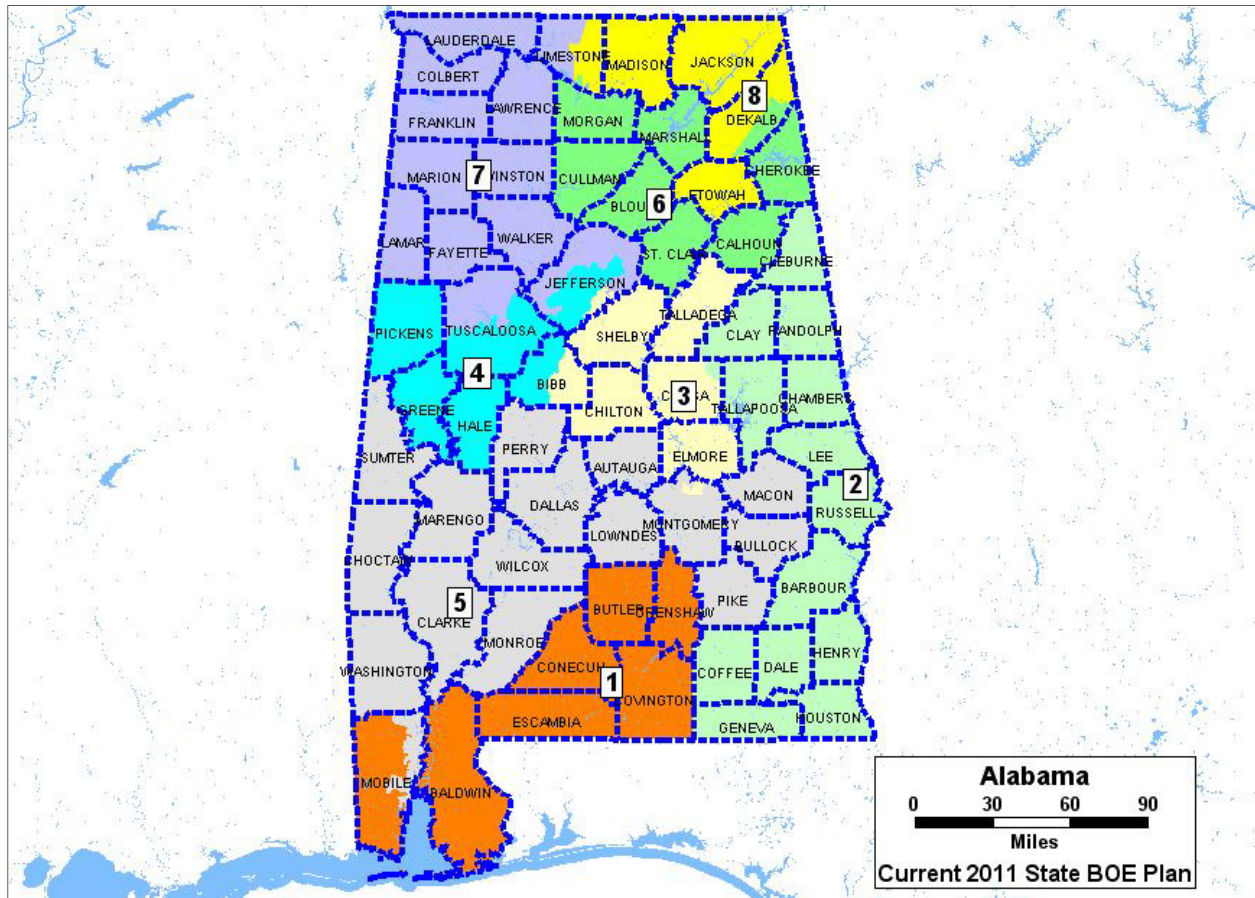
⁴ Joint public redistricting hearings for the new post-2010 congressional, legislative, and Board of Education election plans were held in April and May of 2011.

Source: http://www.legislature.state.al.us/aliswww/isd/ALReap_MeetingsNotices.aspx

⁵ Source:
http://www.legislature.state.al.us/aliswww/Legislature/2011_State_Board_of_Education_Districts.pdf

Figure 1

Alabama – State Board of Education Plan



14. According to the 2010 Census, BOE District 4 is 51.4% Black voting age population (“BVAP”) and District 5 is 57.5% BVAP.⁶ The ideal BOE district size is 597,467. The 2011 BOE Plan has an overall deviation of just 0.28%.

Exhibit C-2 contains detailed 2010 population statistics by BOE district.

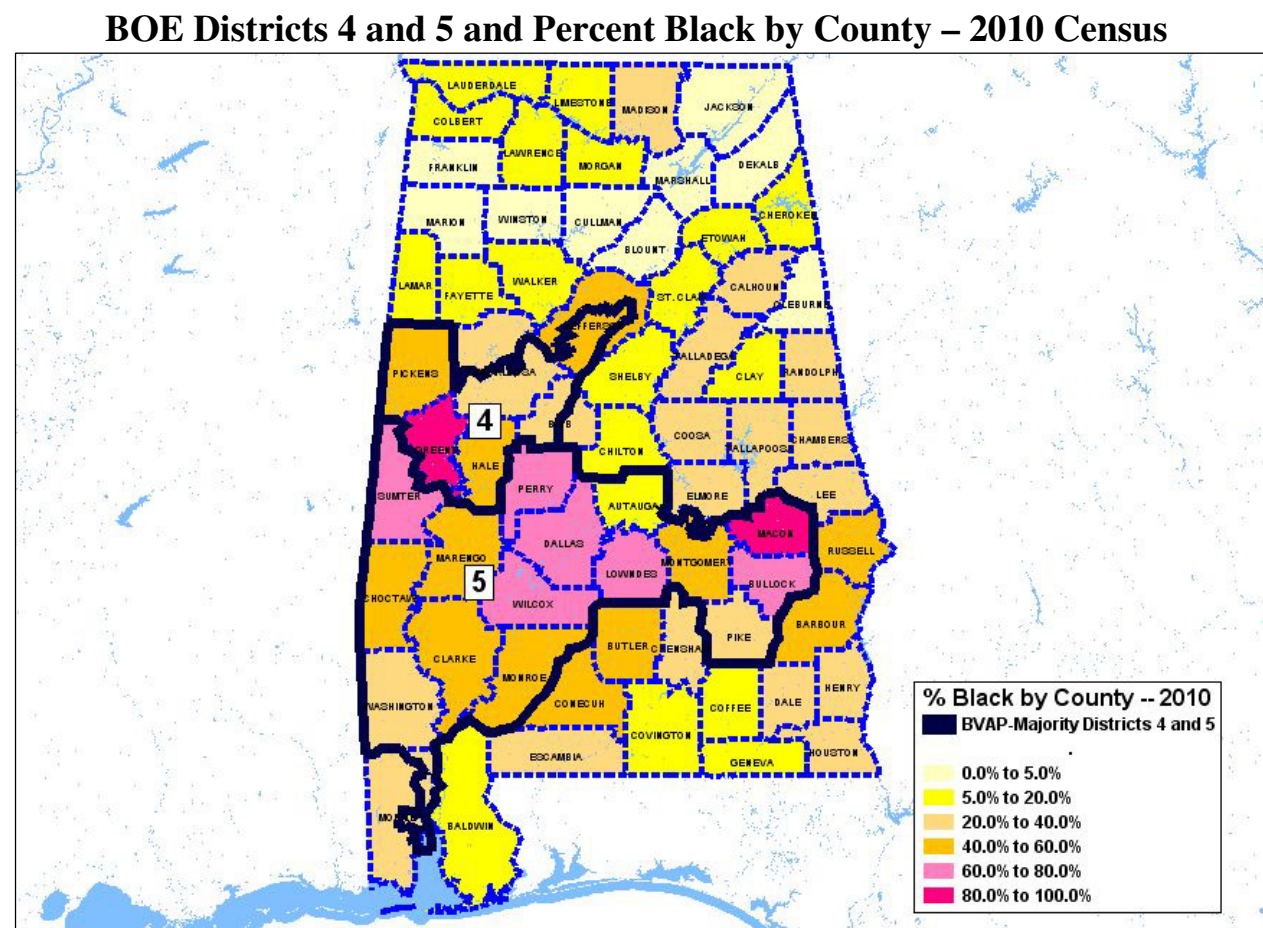
⁶ In this declaration, “African American” or “Black” refers to persons who are Any Part Black (i.e. persons of two or more races and some part Black), including Hispanic Black. In some instances (e.g. for historical comparisons prior to the 2000 Census), numerical or percentage references identify single-race Black as “SR Black”.

It is my understanding that following the U.S. Supreme Court decision in *Georgia v. Ashcroft*, 539 U.S. 461 (2003), the “Any Part” definition is the appropriate Census classification to use in most Section 2 cases.

15. **Exhibit C-3** is a higher resolution version of the **Figure 1** map. **Exhibit C-4** zooms on Mobile County, which is split between Districts 1 and 5, **Exhibit C-5** zooms on Jefferson County, which is split between Districts 3, 4, and 7. **Exhibit C-6** zooms on Montgomery County, which is split between Districts 5 and 3.

16. As shown in **Figure 2**, when the two majority-Black BOE districts are viewed in conjunction with the county-level spatial distribution of Alabama's Black population, a 7-district congressional plan with two majority-Black districts becomes a realistic possibility.

Figure 2



17. For instance, with the inclusion of four counties adjacent to BOE District 5 – Conecuh (47.02% Black), Butler (43.82% Black), Barbour (47.82% Black), and Russell (41.81% Black) – the BOE District 4 and 5 area shown in **Figure 2** has a combined population of 1,308,762 – just 56,290 persons short of the population necessary to create two congressional districts. This area has a BVAP of 53.34%, according to the 2010 Census.

18. Against this backdrop, the four illustrative plans I have prepared (see **Section IV** *infra*) provide demonstrative proof that two majority-Black U.S. House districts can be drawn that adhere to traditional redistricting principles.

19. In addition to traditional redistricting principles, the illustrative plans I have developed consider and adhere to the Alabama Legislature’s definition of community of interest as set forth in the *Reapportionment Committee Guidelines for Congressional, Legislative, and Board of Education Redistricting*:

The integrity of communities of interest shall be respected to the extent feasible. For purposes of these Guidelines, a community of interest is defined as an area with recognized similarities of interests, including but not limited to racial, ethnic, geographic, governmental, regional, social, cultural, partisan, or historic interests; county, municipal, or voting precinct boundaries; and commonality of communications.⁷

⁷ Source:
<http://www.legislature.state.al.us/aliswww/reapportionment/Reapportionment%20Guidelines%20for%20Redistricting.pdf>

(d) Expert Summary Conclusions

20. African Americans in Alabama are sufficiently numerous and geographically compact to allow for two majority-Black U.S. House districts in a 7-district plan.

21. As reported in the 1-Year *2017 American Community Survey*, non-Hispanic Whites significantly outpace African Americans across most key indicators of socio-economic well-being. These disparities are found statewide, as well as at the regional level in central and south Alabama.

(e) Organization of Declaration

22. The remainder of this declaration is organized as follows: **Section II** reviews state and regional demographics; **Section III** compares the benchmark 2001 U.S. House Plan and the current 2011 U.S. House Plan; **Section IV** presents four illustrative plans, which feature a new majority-Black congressional district in central and south Alabama; **Section V** reviews socioeconomic disparities by race.

II. DEMOGRAPHIC PROFILE OF ALABAMA

A. DECENNIAL CENSUS

(a) 1990 - 2010 – Population by Race and Ethnicity

23. As shown in **Figure 3** (on the next page), according to the 2010 Census, Alabama has a total population of 4,779,736. Non-Hispanic Whites (“NH Whites”) are a majority of the population (67.04%). African Americans –26.80% Any Part

Black (“Black”) – comprise the largest minority population, followed by Latinos (3.88%), who may be of any race.

Figure 3

**Alabama – 1990 Census to 2010 Census
Population by Race and Ethnicity**

	1990 Number	Percent	2000 Number	Percent	2010 Number	Percent
Total Population	4,040,587	100.00	4,447,100	100.00	4,779,736	100.00%
NH White*	2,960,167	73.26%	3,125,819	70.29%	3,204,402	67.04%
Total Minority Pop.	1,080,420	26.74%	1,321,281	29.71%	1,575,334	32.96%
Latino	24,629	0.61%	75,830	1.71%	185,602	3.88%
NH Black*	1,017,713	25.19%	1,150,076	25.86%	1,244,437	26.04%
NH Asian*#	21,217	0.53%	21,618	0.49%	25,907	0.54%
NH Hawaiian and PI*#	NA	NA	30,989	0.70%	52,937	1.11%
NH American Indian and Alaska Native*	16,221	0.40%	1,059	0.02%	1,976	0.04%
NH Other*	640	0.02%	2,623	0.06%	4,030	0.08%
NH Two or More #Races*	NA	NA	39,086	0.88%	6,0445	1.26%
Single-race Black (Including Hispanics)	1,020,705	25.26%	1,155,930	25.99%	1,251,311	26.18%
Any Part Black (Including Hispanics)	NA	NA	4447100	26.29%	1,281,118	26.80%

* Single-race, Non-Hispanic;

In 1990, “Asian” includes Hawaiian and Pacific Islander.

NA – Not available, not reported in 1990 Census

24. The population in Alabama grew by 18.2% between 1990 and 2010 – from about 4.04 million to 4.78 million. In 1990, minorities represented just over one-fourth (26.74%) of the population. By 2010, minorities comprised about one-third (32.96%) of Alabama’s population.

25. The SR Black population grew by 20.33% between 1990 and 2010, from 25.26% to 26.18%. Including the Any Part Black category (first tabulated in the 2000 Census), African Americans represent 35.23% of the 1990 to 2010 population

increase in Alabama (260,413 AP Black of 739,149 persons). By comparison, the NH White population grew by 8.25% (244,235 persons) from a larger 1990 population base over the same 20-year period.

(b) Spatial Distribution of the Black Population

26. According to the 2010 Census, about half of Alabama’s Black population is concentrated in the urban counties of Jefferson (Black pop. 290,864), Madison (Black pop. 94,544), Montgomery (Black pop. 134,781), and Mobile (Black pop. 152,458). The rural Black Belt counties (excluding urban Black Belt Montgomery County) account for about 12% of the statewide Black population.⁸ The counties of Lee and Tuscaloosa – home to the two largest state universities – contain about 7% of the statewide Black population. Taken together, the urban counties, rural Black Belt counties, and university counties encompass about 70% of the statewide Black population.

27. The map in **Figure 4** (on the next page) displays 2010 percent Black by county, with thick black lines demarcating the Black Belt region. The table in

⁸ In this declaration, the term “Black Belt” refers to the following counties: Barbour, Bullock, Dallas, Greene, Hale, Lowndes, Macon, Marengo, Montgomery, Perry, Sumter, and Wilcox. This is consistent with my testimony in *Alabama Legislative Black Caucus v Alabama* and *Alabama State Conference of the NAACP v. Alabama*.

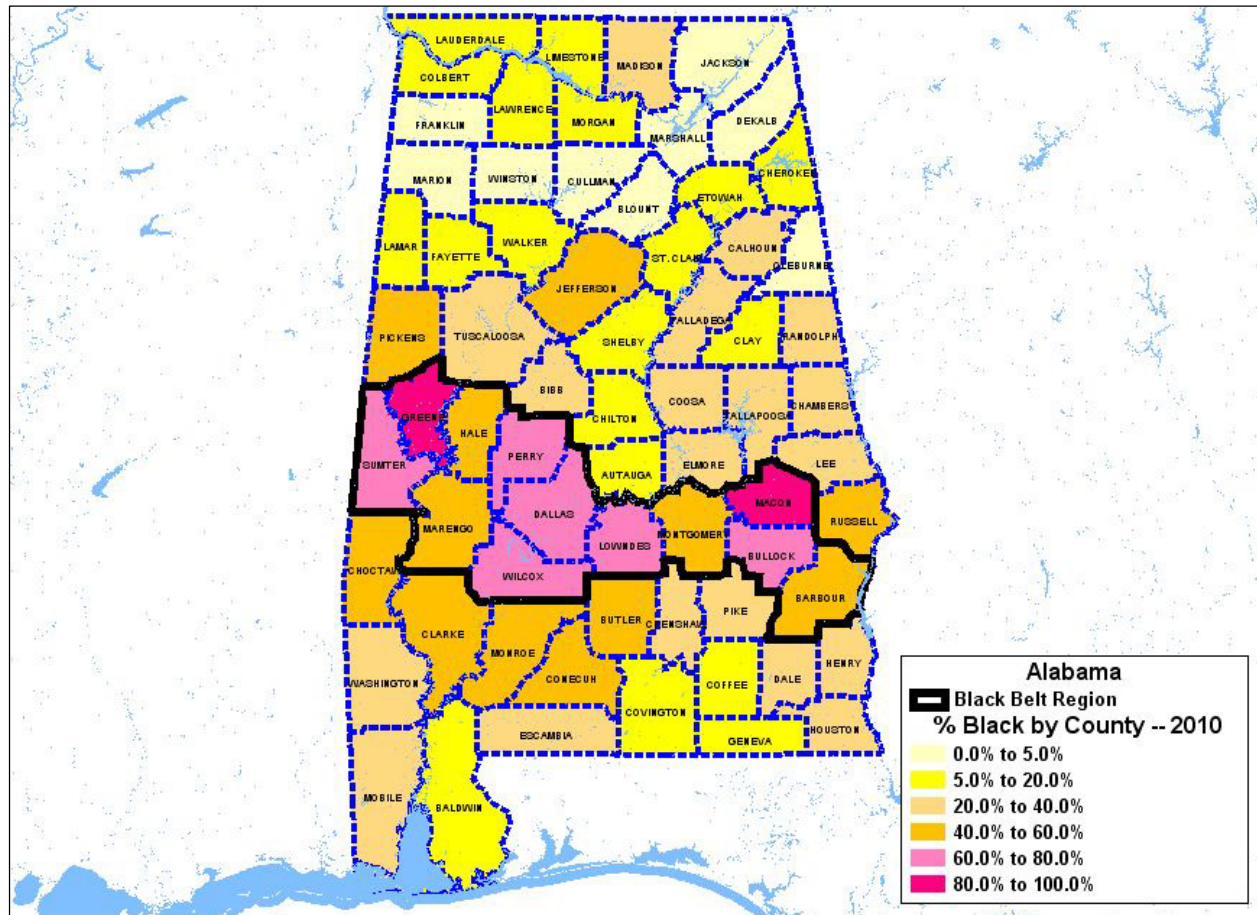
For an overview of Alabama’s Black Belt, including a listing of Black Belt counties under various definitions, see the article “Black Belt Region in Alabama” by Terance L. Winemiller, Auburn University at Montgomery, in the Encyclopedia of Alabama.

<http://www.encyclopediaofalabama.org/article/h-2458>

Exhibit D presents 2010 population by county by race and ethnicity.

Figure 4

Black Belt Region and Percent Black by County – 2010 Census



28. As shown in **Figure 5** (on the next page), African Americans constitute a slightly smaller percentage of the voting age population (VAP) than the total population. According to the 2010 Census, Alabama has a total VAP of 3,647,277, of whom 917,500 (25.16%) are Any Part Black. The NH White VAP in Alabama is 2,530,761 (69.39%).

Figure 5

Alabama – 2010 Voting Age by Race and Ethnicity

	2010 VAP	2010 VAP Percent
Total	3,647,277	100.00%
NH White 18+	2,530,761	69.39%
Total Minority 18+	1,116,516	30.61%
Latino 18+	118,336	3.24%
NH Black 18+	902,278	24.74%
Single-race Black (Including Hispanics) 18+	906,778	24.86%
Any Part Black (Including Hispanics) 18+	917,500	25.16%

B. POST-2010 POPULATION ESTIMATES

29. As shown in **Figure 6** (on the next page), U.S. Census Bureau (“Census Bureau”) estimates indicate that Alabama has a 2017 total population of 4,874,747 – an increase of 95,011 persons (1.95%) since 2010.⁹ The 2017 estimates indicate that the NH White population has fallen by 7,550 persons since 2010, so Alabama’s population growth since 2010 can be attributed entirely to gains in the overall minority population.¹⁰

⁹ Census Bureau estimates for 2018 indicate that the statewide population has increased to 4,887,120. Detailed estimates by race for 2018 are not available as of March 8, 2019.

¹⁰ Sources for 2017 estimates:
<https://factfinder.census.gov/bkmk/table/1.0/en/PEP/2017/PEPSR6H/0400000US01.05000?slice=Year~est72017>
<https://factfinder.census.gov/bkmk/table/1.0/en/PEP/2017/PEPSR6H/0400000US01.05000?slice=Year~est72017>

The methodology for Census Bureau annual estimates is explained in documentation at the link below:

<https://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html>

Figure 6

Alabama – 2017 Estimates

	2017 Population	Percent	2017 VAP	Percent
Total	4,874,747	100.0%	3,775,026	100.0%
NH White	3,196,852	65.6%	2,562,663	67.9%
Total Minority	1,677,895	34.4%	1,212,363	32.1%
Latino	211,058	4.3%	127,733	3.4%
NH Black	1,292,827	26.5%	971,928	25.7%
Single-race Black (Including Hispanics)18+	1,308,214	26.8%	981,761	26.0%
Any Part Black (Including Hispanics)	1,348,681	27.7%	1,038,258	27.5%

30. The Census Bureau estimates that between 2010 and 2017 the African American population grew by about 5.0% – an increase of 67,563 persons. African Americans account for 71.1% of the total estimated population growth since 2010. According to the 2017 population estimates, African Americans represent 27.7% of the statewide population – up by nearly a percentage point from 26.18% in 2010.

31. Statewide, the Black voting age population has grown at a faster pace than the overall Black population since 2010 – up by 11.6%, representing an increase of 120,758 persons of voting age. African Americans account for 94.5% of the estimated 127,749 increase in VAP between 2010 and 2017. According to the 2017 estimates, the statewide Black voting age population is 27.5%, compared to 25.16% in 2010.

32. **Exhibit E** contains county-level 2017 population estimates by race and ethnicity published by the Census Bureau. The Census Bureau does not publish

county-level voting age population estimates.

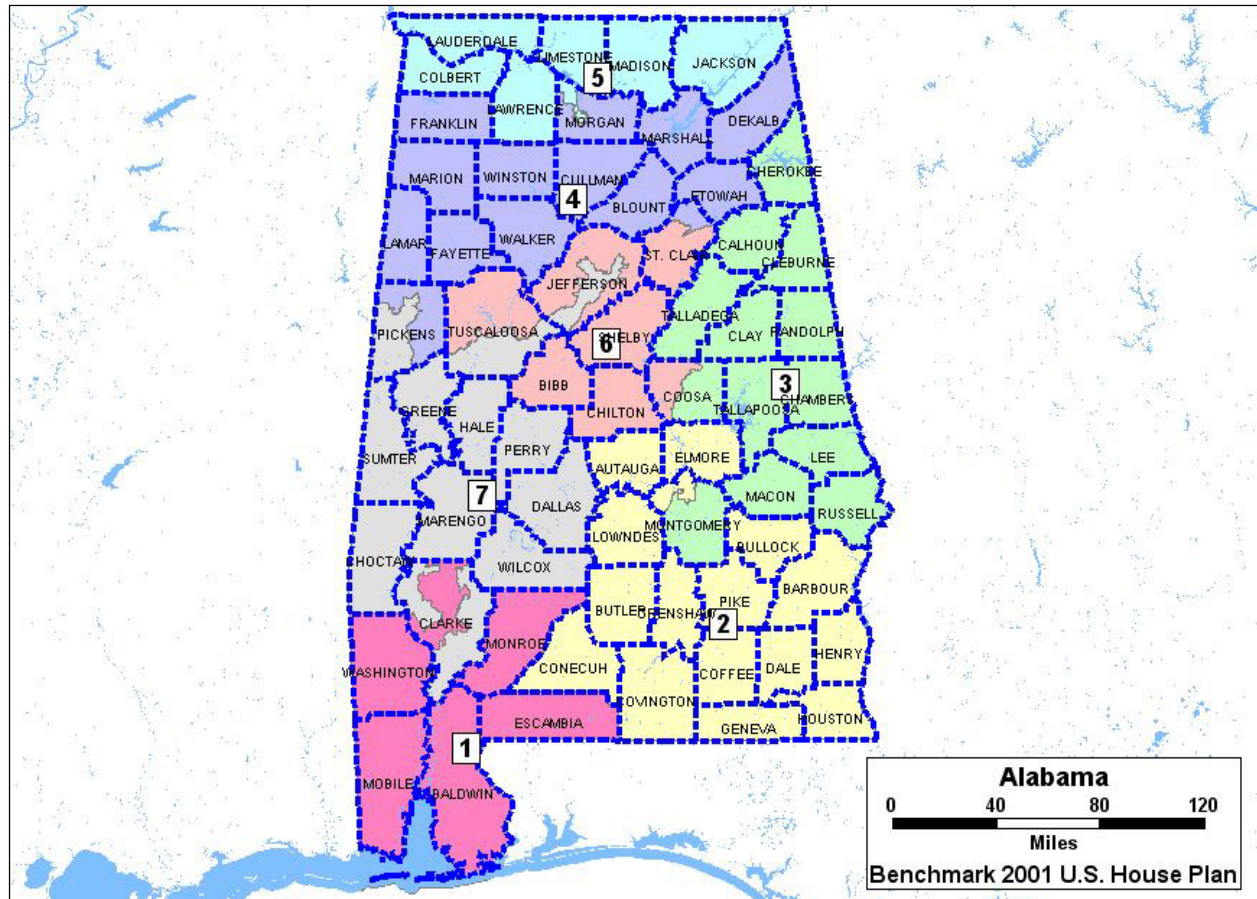
III. ALABAMA CONGRESSIONAL PLANS

(a) Benchmark 2001 U.S. House Plan

33. The map in **Figure 7** depicts the 2001 Plan, which was in place for congressional elections held between 2002 and 2010. The map in **Exhibit F-1** is a higher resolution version of the **Figure 7** map.

Figure 7

Alabama – Benchmark 2001 Plan



34. Under the benchmark 2001 Plan, majority-Black CD 7 had a BVAP of 60.11%, according to the 2010 Census. Most of the remainder of the Black

population was distributed in a relatively even fashion into CD 1 (26.16% BVAP), CD 2 (29.63% BVAP), and CD 3 (30.73% BVAP). Taken together, these three districts had a total 2010 Black population of 629,911 (and a BVAP of 448,810), which was nearly enough population (92.3%) to comprise an entire congressional district.

35. **Figure 8** shows 2010 summary population statistics by district for the 2001 Plan. **Exhibit F-2** contains detailed 2010 population statistics by 2001 Plan district.

Figure 8

2001 Benchmark Plan – 2010 Census

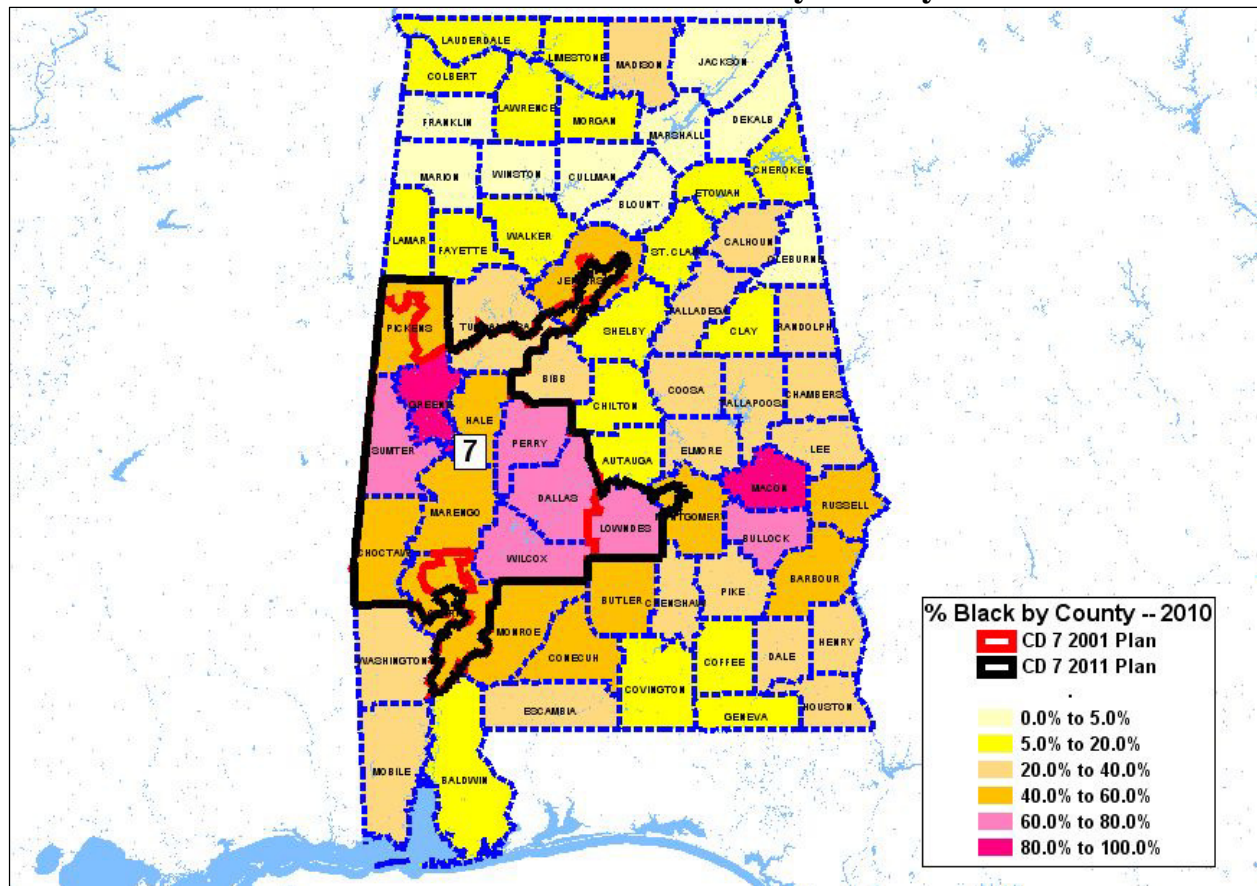
District	Population	Dev	% Dev.	18+ Pop	% 18+ Black	% 18+ NH White
1	687841	5022	0.74%	520065	26.16%	68.42%
2	673877	-8942	-1.31%	512785	29.63%	65.66%
3	681298	-1521	-0.22%	523347	30.73%	64.81%
4	660162	-22657	-3.32%	504109	4.96%	88.44%
5	718724	35905	5.26%	551145	17.57%	75.38%
6	754482	71663	10.50%	573179	12.00%	82.11%
7	603352	-79467	-11.64%	462647	60.11%	36.13%

(b) **2011 Plan**

36. In 2011, Alabama adopted a congressional plan (the “2011 Plan”) with CD 7 (60.91% BVAP) as the only majority-Black district. **Figure 9** displays CD 7 under the 2011 Plan, with an overlay of 2010 percent Black by county. Red lines show boundaries for the benchmark 2001 Plan.

Figure 9

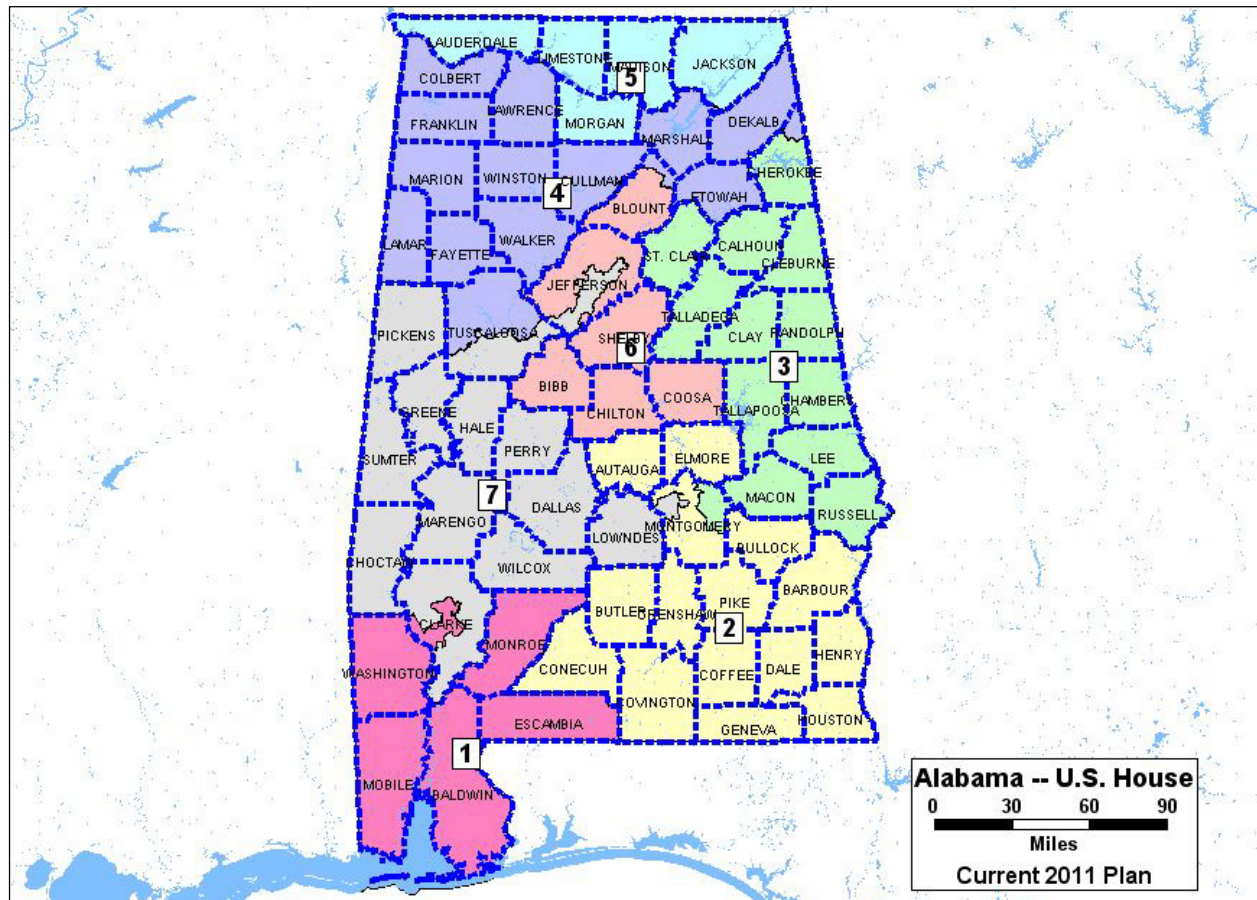
Alabama – CD 7 and Percent Black by County – 2010 Census



37. The map in **Figure 10** depicts the 2011 Plan.

Figure 10

Alabama – Current 2011 Plan



38. Majority-Black CD 7 encompasses part of Jefferson County and extends south to include northwest Montgomery County and several rural Black Belt counties to the west.

39. Montgomery County and the City of Montgomery are split into three districts – CD 2, CD 3 and CD 7. Majority-Black Macon County is in CD 3, which

extends north to encompass Cherokee County in Appalachian Alabama. Majority-Black Bullock County and plurality-Black Barbour County are joined with southeast Alabama counties in CD 2. The majority-Black City of Mobile (Black pop. 100,265) is in CD 1.

40. The table in **Figure 11** shows 2010 summary population statistics for the 2011 Plan. **Exhibit G-1** contains detailed 2010 population statistics by district.

Figure 11

2011 Plan – 2010 Census

District	Population	18+ Pop	% 18+ Black	% 18+ NH White
1	682820	516246	25.80%	68.45%
2	682820	520453	27.90%	66.61%
3	682819	524977	24.04%	71.46%
4	682819	522101	6.58%	86.89%
5	682819	522912	16.42%	76.12%
6	682819	518014	12.65%	80.72%
7	682820	522574	60.55%	35.54%

41. According to the 2010 Census, about one-third (34.18%) of Alabama's Black population lives within majority-Black CD 7. Most of the remainder of the Black population is distributed in a relatively even fashion into CD 1 (25.80% BVAP), CD 2 (27.90% BVAP), and CD 3 (24.04% BVAP). Taken together, these three districts have a total 2010 Black population of 575,923 (and a BVAP of 409,604), which is nearly enough population (84.3%) to comprise an entire congressional district.

42. By contrast, 93.1% of the NH White population lives in one of the six majority-White districts.

43. To facilitate comparison with the plaintiffs' illustrative plans, the map in **Exhibit G-2** is a higher resolution version of the **Figure 11** map. **Exhibit G-3** contains maps that zoom on each of the seven congressional districts. **Exhibit G-4** zooms on Montgomery County, which is split between CD 2, CD 7, and CD 3. **Exhibit G-5** zooms on Jefferson County, which is split between CD 6 and CD 7. **Exhibit G-6** identifies county splits in the 2011 Plan. District boundary lines in the 2011 Plan split seven counties. Populated areas in 16 VTDs¹¹ are split. **Exhibit G-7** is a state-produced map of the 2011 Plan.¹²

44. The Google map available at the link below is an address-searchable map of the 2011 Plan. Gray lines show county boundaries.

http://www.fairdata2000.com/Fusion/AL_Congress_2011_Plan/

¹¹ VTD” is a Census Bureau term meaning “voting tabulation district.” VTDs correspond to precincts as they existed at the time of the 2010 Census.

¹² Source:
http://www.legislature.state.al.us/aliswww/Legislature/2011_Congressional_Districts.pdf

IV. THE PLAINTIFFS' ILLUSTRATIVE PLANS

A. GEOGRAPHICAL AREA

(a) Point of Departure – The 2011 BOE Plan

45. For the past quarter century, more than half of African Americans in Alabama have lived in one of the two state Board of Education minority opportunity districts. According to the 2000 Census, under the court-ordered 1996 BOE Plan, District 4 was 46.61% SR BVAP and BOE District 5 was 51.75% SR BVAP. Under the 2001 BOE Plan, BOE District 4 was 47.61% SR BVAP and BOE District 5 was 51.97% SR BVAP.¹³

46. Under the 2011 BOE Plan, District 4 and District 5 are both majority-BVAP (see ¶¶12-16 *supra*). According to the 2010 Census, the combined Black population in these two districts is 683,923, which represents more than half (53.38%) of the statewide Black population.

(b) Area Encompassed by the Illustrative Majority-Black Districts

47. Following the lead of the 2011 BOE Plan, the four illustrative plans described below create a second majority-BVAP district in central and south Alabama. Taken together, the Black population within the two majority-Black

¹³ Source: February 2, 2002 Section 5 letter from the Alabama Attorney General to the U.S. Department of Justice, available at the Web Archive link below:

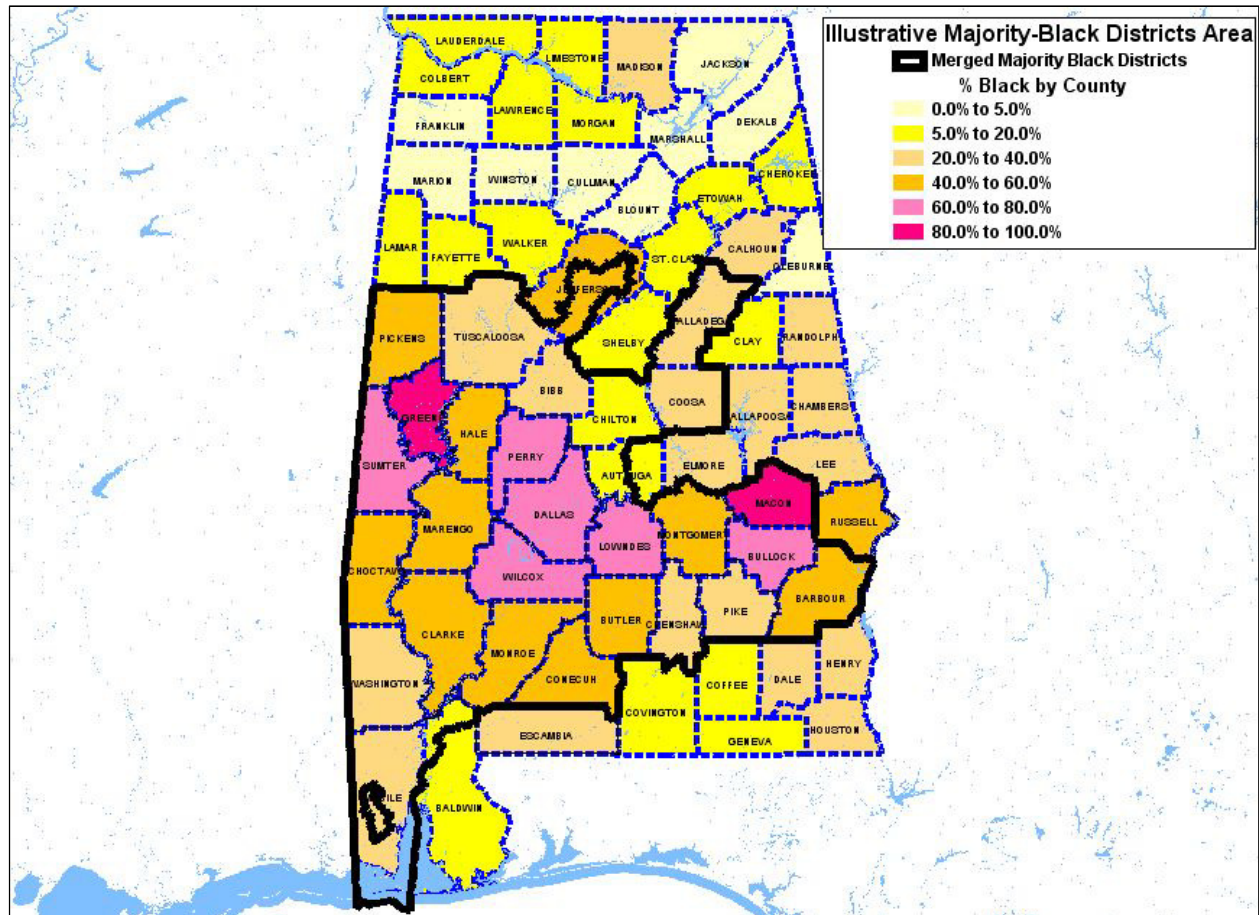
<https://web.archive.org/web/20141018111338/http://www.legislature.state.al.us/reapportionment/boe/boe.html>

congressional districts under each illustrative plan is about 58% of African Americans statewide.

48. **Figure 12** (on the next page) depicts the area encompassed by the illustrative majority-Black districts in the four illustrative plans. The majority-Black congressional districts are drawn around the same general area as the majority-Black BOE districts (see **Figure 2** *supra*). However, compared to the area encompassed by the two majority-Black BOE districts, the illustrative majority-Black congressional districts must expand to account for the larger ideal population size in a 7-district plan – 682,819 – versus 597,467 under an 8-district BOE plan.

Figure 12

Area Encompassed by Illustrative Majority-Black Districts – 2010 Census



49. There are a variety of ways to draw two majority-Black congressional districts in Alabama. Thus, the **Figure 12** map delineates an area that encompasses a significantly larger population base than what is necessary for two districts. In the **Figure 12** map, the combined area of the two majority-Black districts in each of the four illustrative plans (i.e. eight districts with partial overlaps) has a 2010 population of 1,707,430 – representing a 341,790-person surplus (i.e. two and a half districts).

B. ILLUSTRATIVE PLAN DESCRIPTIONS

(a) Illustrative Plans – *Gingles* 1 and Traditional Redistricting Principles

50. The illustrative plans demonstrate the first *Gingles* precondition, i.e. the Black population is sufficiently numerous and geographically compact to allow for the creation of one additional Black-majority district.

51. All four illustrative plans comply with traditional redistricting principles, including one-person one-vote, compactness, contiguity, respect for communities of interest, and the non-dilution of minority voting strength. The illustrative plans avoid 2018 incumbent conflicts, i.e. no incumbents are paired in the same district.¹⁴

52. The illustrative plans are drawn to follow, to the extent possible, county boundaries. Where counties are split to comply with one-person one-vote requirements, I have generally used whole 2010 Census VTDs as sub-county components.¹⁵

(b) Illustrative Plans – Common Characteristics

53. The four illustrative plans share the following features:

- The 2010 Black VAP in the illustrative majority-Black districts is well above 50%, resulting in BVAP to NH White VAP margins ranging from about 4.7 to 8 percentage points.

¹⁴ With the exception of two incumbents whose addresses were provided by Defendant, I determined incumbent residences to the best of my knowledge based on publicly available information. As of the date of this report, the Defendant in this case has not provided the remaining incumbent addresses in the course of discovery.

¹⁵ In 2017, during the remedy stage of *Alabama Legislative Black Caucus et al. v. Alabama et al.*, the parties relied on 2010 Census VTD boundaries as precinct identifiers.

- The plans split the same number of counties or fewer than the 2011 Plan. Illustrative Plan 1 and Illustrative Plan 4 split six counties – one less than under the 2011 Plan. Illustrative Plan 2 and Illustrative Plan 3 split seven counties.
- All four illustrative plans have fewer discrete county splits (unique district/county combinations) than the 2011 Plan. The 2011 Plan has 15 discrete splits, versus 12 in Illustrative Plans 1 and 4. Illustrative Plans 2 and 3 have 14 discrete splits.
- The illustrative plans create a new majority-Black District 2 that joins African American communities in Mobile, Montgomery and the central and eastern rural Black Belt counties.
- New majority-Black District 2 under the illustrative plans has a configuration that is similar to District 5 in the 2011 BOE Plan.
- Montgomery County is entirely within new majority-Black District 2 under the illustrative plans. The plans eliminate the three-district split of Montgomery County and the City of Montgomery under the 2011 Plan.
- Under the illustrative plans, District 7 joins African American communities in Jefferson County, Tuscaloosa, and the western rural Black Belt counties, as it does in the 2011 Plan.
- Like the 2011 BOE Plan, the illustrative plans join District 1 in Baldwin County with District 1 in part of Mobile County. Illustrative Plans 1, 2, and 3 join Baldwin to Mobile by following I-10 and U.S. 98 across Mobile Bay and south into the City of Mobile. Illustrative Plan 4 joins Baldwin and Mobile counties across the northern quadrant of Mobile County, bisected by I-65.
- Under all four illustrative plans, District 5 (north Alabama) is virtually identical to 2011 Plan CD 5. The only difference is that 200 persons in Jackson County assigned to CD 4 are in a single contiguous area rather than two non-contiguous pieces as in the 2011 Plan.

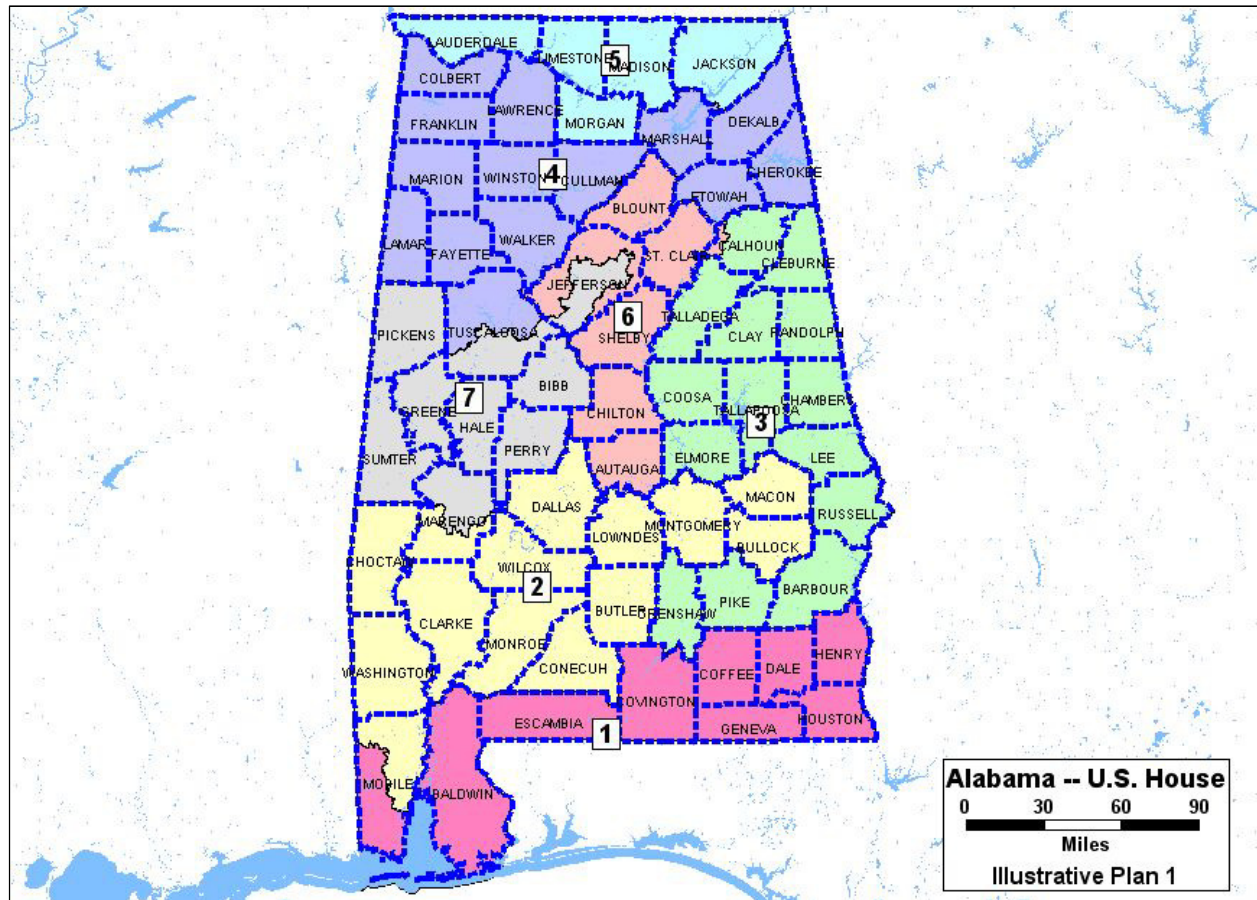
(c) Illustrative Plan 1

54. The map in **Figure 13** (on the next page) depicts Illustrative Plan 1.

District 2 is 51.32% BVAP and District 7 is 50.68% BVAP.

Figure 13

Alabama U.S. House – Illustrative Plan 1



55. Majority-Black District 2 encompasses part of Mobile County, extends north to include all of Choctaw County and part of Marengo County, then east through the Black Belt counties. Macon and Bullock counties form the eastern boundary.

56. Majority-Black District 7 encompasses part of the counties of Jefferson and Tuscaloosa, extends west to the Mississippi state line, then south to share Marengo County with District 2.

57. The table in **Figure 14** shows 2010 summary population statistics for Illustrative Plan 1. **Exhibit H-1** contains detailed 2010 population statistics by district.

Figure 14
Illustrative Plan 1– 2010 Census

District	Population	18+ Pop	% 18+ Black	% 18+ NH White
1	682820	518723	15.43%	78.82%
2	682819	515026	51.32%	44.53%
3	682820	526051	25.83%	69.79%
4	682818	522415	6.50%	87.20%
5	682819	522910	16.81%	76.12%
6	682820	514618	9.33%	84.40%
7	682820	527534	50.68%	45.02%

58. The map in **Exhibit H-2** is a higher resolution version of the **Figure 13** map. **Exhibit H-3** contains maps zooming on each of the seven congressional districts. **Exhibit H-4** shows Mobile County, which is split between District 1 and District 2. **Exhibit H-5** shows Jefferson County, which is split between District 6 and District 7. As shown in **Exhibit H-6**, Illustrative Plan 1 splits six counties – one less than the 2011 Plan.

59. The Google map available at the link below is an address-searchable map of Illustrative Plan 1. Gray lines show county boundaries.

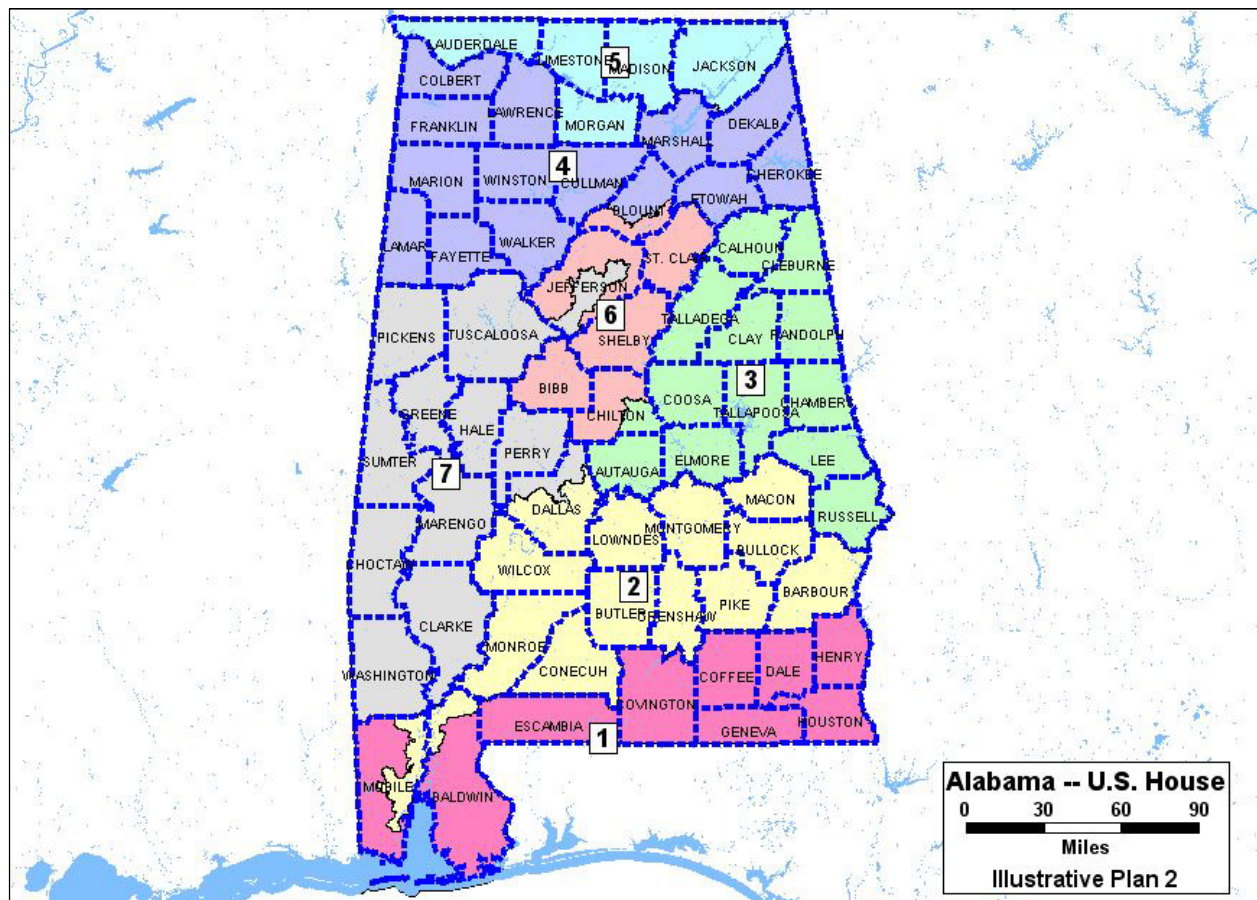
http://www.fairdata2000.com/Fusion/AL_Congress_Illustrative_Plan_1/

(d) **Illustrative Plan 2**

60. The map in **Figure 15** depicts Illustrative Plan 2. District 2 is 51.37% BVAP and District 7 is 51.96% BVAP.

Figure 13

Alabama U.S. House – Illustrative Plan 2



61. Majority-Black District 2 encompasses part of Mobile County and extends east to encompass all of the eastern rural Black Belt counties. The eastern boundary of District 2 is formed by the Barbour County/Georgia state line.

62. Majority-Black District 7 encompasses part of Jefferson County and extends south to Tuscaloosa County and the rural western Black Belt counties. The Washington/Mobile county line is the southern boundary.

63. Dallas County is shared between District 2 and District 7. Tuscaloosa County, which is split between CD 4 and CD 7 under the 2011 Plan, is entirely in District 7.

64. All of the Black Belt counties as identified in **Figure 4** *supra* are included in either District 2 or District 7.

65. The table in **Figure 15** shows 2010 summary population statistics for Illustrative Plan 2. **Exhibit I-1** contains detailed 2010 population statistics by district.

Figure 15

Illustrative Plan 2– 2010 Census

District	Population	18+ Pop	% 18+ Black	% 18+ NH White
1	682818	519083	15.11%	79.16%
2	682820	516993	51.37%	44.25%
3	682820	522746	23.53%	72.14%
4	682820	522785	6.35%	87.06%
5	682819	522910	16.81%	76.12%
6	682819	518683	11.00%	82.98%
7	682820	524077	51.96%	43.96%

66. The Illustrative Plan 2 maps in the **Exhibit I** series are identical in format to the **Exhibit H** series (Illustrative Plan 1). As shown in **Exhibit I-6**, Illustrative Plan 2 splits seven counties – the same number as the 2011 Plan.

http://www.fairdata2000.com/Fusion/AL_Congress_Illustrative_Plan_2/

68. The map in **Figure 16** depicts Illustrative Plan 3. District 2 is 50.99% BVAP and District 7 is 50.28% BVAP.

Alabama U.S. House – Illustrative Plan 3



69. Majority-Black District 2 encompasses part of Mobile County, extends north to include all of Choctaw County, then east through the Black Belt, with Macon and Bullock counties forming the eastern boundary. Part of Autauga County is shared with District 3.

70. Majority-Black District 7 encompasses part of Jefferson and Tuscaloosa counties, extends south to include the western Black Belt counties, and east to encompass Chilton, Coosa, and Talladega counties.

71. The table in **Figure 17** shows 2010 summary population statistics for Illustrative Plan 3. **Exhibit J-1** contains detailed 2010 population statistics by district.

Figure 17

Illustrative Plan 3 – 2010 Census

District	Population	18+ Pop	% 18+ Black	% 18+ NH White
1	682818	519678	15.70%	78.52%
2	682820	514136	50.99%	44.89%
3	682820	524411	23.03%	72.50%
4	682820	522064	6.22%	87.11%
5	682819	522910	16.81%	76.12%
6	682819	518094	13.14%	80.94%
7	682820	525984	50.28%	45.55%

72. The Illustrative Plan 3 maps in the **Exhibit J** series are identical in format to the maps in the **Exhibit H** and **Exhibit I** series. As shown in **Exhibit J-6** Illustrative Plan 3 splits seven counties – the same number as the 2011 Plan.

73. The Google map available at the link below is an address-searchable map of Illustrative Plan 3. Gray lines show county boundaries.

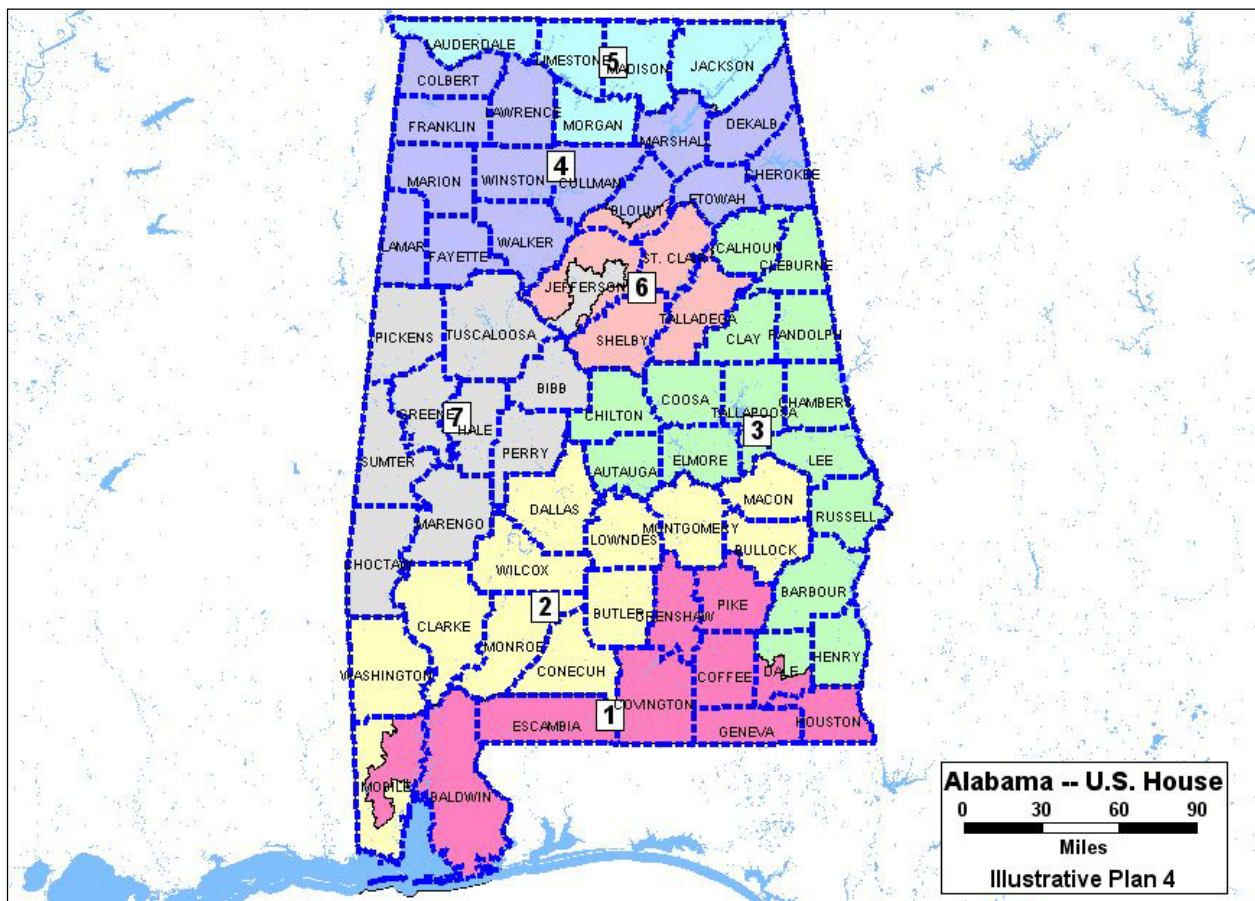
http://www.fairdata2000.com/Fusion/AL_Congress_Illustrative_Plan_3/

(f) Illustrative Plan 4

74. The map in **Figure 18** depicts Illustrative Plan 4. District 2 is 50.33% BVAP and District 7 is 50.74% BVAP.

Figure 18

Alabama U.S. House – Illustrative Plan 4



75. Majority-Black District 2 encompasses part of Mobile County, extends north to include all of Washington County, then east through the Black Belt counties. Macon and Bullock counties form the eastern boundary.

76. Majority-Black District 7 encompasses part of Jefferson County and extends south to encompass all of Tuscaloosa County and the rural western Black Belt counties.

77. In contrast to the first three illustrative plans and the 2011 BOE Plan, Illustrative Plan 4 shows an alternative way to divide Mobile County between Districts 1 and 2. In the Illustrative Plan 4 configuration, the western boundary of District 2 follows the Mississippi state line from Washington County south to the Gulf, and then east to Mobile Bay.

78. The table in **Figure 18** shows 2010 summary population statistics for Illustrative Plan 4. **Exhibit K-1** contains detailed 2010 population statistics by district.

Figure 18

Illustrative Plan 4 – 2010 Census

District	Population	18+ Pop	% 18+ Black	% 18+ NH White
1	682819	519678	16.56%	77.61%
2	682820	514136	50.33%	45.42%
3	682820	524411	22.88%	72.51%
4	682818	522064	6.35%	87.06%
5	682819	522910	16.81%	76.12%
6	682820	518094	12.52%	81.76%
7	682820	525984	50.74%	45.13%

79. The Illustrative Plan 4 maps in the **Exhibit K** series are identical in format to the maps in the **Exhibit H, I, and J** series. As shown in **Exhibit K-6** Illustrative Plan 4 splits six counties – one less than the 2011 Plan.

80. The Google map available at the link below is an address-searchable map of Illustrative Plan 4. Gray lines show county boundaries.

http://www.fairdata2000.com/Fusion/AL_Congress_Illustrative_Plan_4/

C. SUPPLEMENTAL PLAN INFORMATION

(a) Compactness Measures

81. The districts in the illustrative plans are reasonably shaped and compact. **Exhibit L-1** (Reock¹⁶) and **Exhibit L-2** (Polsby- Popper¹⁷) report district-by-district compactness scores generated by Maptitude.

¹⁶ “The Reock test is an area-based measure that compares each district to a circle, which is considered to be the most compact shape possible. For each district, the Reock test computes the ratio of the area of the district to the area of the minimum enclosing circle for the district. The measure is always between 0 and 1, with 1 being the most compact. The Reock test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan.” *Maptitude For Redistricting* software documentation (authored by the Caliper Corporation).

¹⁷ The Polsby-Popper test computes the ratio of the district area to the area of a circle with the same perimeter: $4\pi \text{Area} / (\text{Perimeter}^2)$. The measure is always between 0 and 1, with 1 being the most compact. The Polsby-Popper test computes one number for each district and the minimum, maximum, mean and standard deviation for the plan. *Maptitude For Redistricting* software documentation (authored by the Caliper Corporation).

82. The table in **Figure 19** (on the next page) summarizes the Reock and Polsby-Popper scores for the four illustrative plans, alongside scores for the 2011 Plan and other statewide plans.

83. On balance, compared to the 2011 Plan, the illustrative plans score somewhat less compact on the Reock measure. But in all instances the Reock score of the two majority-Black districts is higher than the minimum Reock district score in the 2011 Plan (.22). And under Illustrative Plan 1, District 7 has the same Reock score as CD 7 (.38) in the 2011 Plan.

84. Illustrative Plans 2 and 4 have the same mean average score as the 2011 Plan on the Polsby Popper measure, with Illustrative Plans 1 and 3 scoring .01 and .02 lower, respectively. In all instances the Polsby-Popper score of the two majority-Black districts is the same as or higher than the minimum Polsby-Popper district score in the 2011 Plan (.13).

Figure 19

Compactness Scores – Illustrative Plans vs 2011 Plan

	Reock				Polsby-Popper		
		Low	High			Low	High
2011 Plan							
All Districts (mean avg.)	.38	.22	.49		.19	.13	.28
CD 7	.38				.13		
BOE Plan							
All Districts (mean avg.)	.40	.24	.52		.19	.15	.22
BOE District 4	.40				.15		
BOE District 5	.37				.15		
2017 State Senate Plan							
All Districts (mean avg.)	.40	.14	.63		.25	.11	.57
2017 State House Plan							
All Districts (mean avg.)	.38	.11	.64		.23	.09	.49
Illustrative Plan 1							
All Districts (mean avg.)	.31	.21	.38		.18	.11	.27
District 2	.35				.18		
District 7	.38				.20		
Illustrative Plan 2							
All Districts (mean avg.)	.32	.21	.46		.19	.12	.27
District 2	.27				.14		
District 7	.31				.20		
Illustrative Plan 3							
All Districts (mean avg.)	.28	.20	.35		.17	.11	.27
District 2	.33				.18		
District 7	.31				.13		
Illustrative Plan 4							
All Districts (mean avg.)	.33	.22	.52		.19	.13	.27
District 2	.24				.13		
District 7	.35				.26		

85. **Figure 19** reveals that compared to the other statewide plans, the illustrative plans are clearly within the norm.

(b) Political Subdivision Splits

86. The table in **Figure 20** summarizes county and 2010 VTD splits under the 2011 Plan and the illustrative plans.

Figure 20

County and VTD Splits – Illustrative Plans vs 2011 Plans

	County Splits	Discrete Spits		2010 VTD Splits (Populated)
2011 Plan	7	15		16
Illustrative Plan 1	6	12		12
Illustrative Plan 2	7	14		11
Illustrative Plan 3	7	14		15
Illustrative Plan 4	6	12		10

87. The 2011 Plan contains seven county splits, compared to six in Illustrative Plans 1 and 4 and seven in Illustrative Plans 2 and 3.

88. The illustrative plans are across-the-board superior in terms of discrete splits (unique district/county combinations). As shown in **Figure 20**, due to the three-way split in Montgomery County, there are 15 discrete splits in the 2011 Plan. This compares to 12 discrete splits in Illustrative Plans 1 and 4, and 14 in Illustrative Plans 2 and 3.

89. **Figure 20** also reveals that the illustrative plans split fewer 2010 VTDs than the 2011 Plan. The 2011 Plan splits populated areas¹⁸ in 16 VTDs – compared to 12 in Illustrative Plan 1, 11 in Illustrative Plan 2, 15 in Illustrative Plan 3, and 10 in Illustrative Plan 4.

(c) Voter Registration

90. Present day voter registration statistics indicate that African Americans constitute a majority of registered voters in both District 2 and District 7.¹⁹

91. For example, African Americans comprise about 54% of registered voters in District 7 under Illustrative Plan 4. (See November 2018 county-level registered voter statistics in **Exhibit M-1**.)

92. Excluding Mobile County, where at this juncture I do not have access to precinct-level registered voter information, African Americans comprise about 57% of registered voters in District 2 under Illustrative Plan 4.

¹⁸ A populated split divides population in a VTD into two or more districts. The 2011 Plan and the illustrative plans also split unpopulated areas. Generally, unpopulated splits involve splits due to bodies of waters or municipal boundaries

¹⁹ This estimate is derived from county-level voter registration statistics for the 2018 General Election and a February 2019 Jefferson County registered voter file (obtained from the Secretary of State) that I geocoded using *Mapitude*.

Source for county-level statistics:

<https://www.sos.alabama.gov/alabama-votes/voter/election-data>

(d) Census 2020 Redistricting Prospects

93. The two majority-Black districts in the illustrative plans have staying power. This is the case even if Alabama loses a congressional district after the release of the 2020 Census, an issue I understand has been raised by counsel for the Defendant.

94. The Census Bureau estimates that the statewide 2018 population is 4,887,120. The ideal district size of a congressional district under a 6-district plan, based on a population of 4.9 million (slightly higher than the 2018 estimate), is 816,667.

95. The area encompassing the majority-Black districts under the illustrative plans, as shown in the **Figure 12** map (see ¶¶47-49 *supra*), has a 2010 population of 1,707,430. This is 114,184 persons more than the population necessary to create two congressional districts under a 6-district plan.

96. But the preceding calculation does not adjust for population change in the area since 2010. **Exhibit M-2** shows 2010-2017 county-level population change. The urban and university counties (highlighted in green) show strong Black population growth since 2010, while the rural Black Belt counties have experienced population declines (highlighted in red).

97. To be sure, Black population loss in the rural Black Belt counties has been significant in percentage terms since 2010. The estimated 2010 to 2017 net Black population loss for these ten counties is 12,510 persons (-9.51%). But the significant post-2010 urban Black population growth in the counties of Jefferson (+10,781), Montgomery (+7,600), Mobile (+6,675) and Tuscaloosa (+9,240) more than offsets the rural Black Belt loss.

98. The estimated 2010 to 2017 Black population gain for these four central and south Alabama counties is 34,296 persons (5.61%). By contrast, the NH White population in these same four counties declined by an estimated 29,183 persons (-3.65%) between 2010 and 2017.

99. As shown in **Figure 21** (on the next page), mid-decade estimates from the 5-year 2013-2017 Special Tabulation of the ACS²⁰ confirm that the single-race NH Black CVAP (“BCVAP”) in Districts 2 and 7 under the illustrative plans remains well above 50% – and higher than the 2010 Census BVAP percentages.

²⁰ Based on a disaggregation of block group level CVAP estimates to 2010 census block-level VAP.

Block group data source:

<https://www.census.gov/programs-surveys/decennial-census/about/voting-rights/cvap.html>

The midpoint of the 2013-2017 survey period is July 1, 2015. Thus, estimates reported in the 5-year ACS are nearly four years behind current 2019 citizenship rates.

The Special Tabulation does not provide an “any part” estimate, so the SR NH Black CVAP understates the AP Black CVAP.

The BCVAP margin over the NH White CVAP ranges from 6.59 percentage points (District 7 in Illustrative Plan 3) to 10.74 percentage points (District 2 in Illustrative Plan 2).

Figure 21

2013-2017 Citizen Voting Age Population by Plan

	% NH SR Black CVAP	% NH White CVAP	NH Black CVAP to NH White CVAP Margin
2011 Plan			
District 2	30.27%	65.59%	-35.32%
District 7	62.40%	35.25%	27.15%
Illustrative Plan 1			
District 2	53.40%	42.98%	10.42%
District 7	52.70%	44.57%	8.13%
Illustrative Plan 2			
District 2	53.54%	42.80%	10.74%
District 7	53.71%	43.53%	10.18%
Illustrative Plan 3			
District 2	53.03%	43.45%	9.58%
District 7	52.02%	45.43%	6.59%
Illustrative Plan 4			
District 2	52.28%	44.08%	8.20%
District 7	52.27%	45.01%	7.26%

100. In light of the Census Bureau's 2017 population by race estimates and the 2013-2017 ACS, it is probable that two majority-Black districts can be drawn in central and south Alabama based on the 2020 Census, even under a six-district plan.

V. SOCIOECONOMIC PROFILE OF ALABAMA

101. Non-Hispanic Whites in Alabama significantly outpace African Americans across a broad range of socioeconomic measures, as reported in the 1-year 2017 ACS.²¹ This disparity is summarized below and depicted with further detail in charts found in **Exhibit N-1** and the table in **Exhibit N-2**.

102. For additional socioeconomic data on congressional districts in the general region where the illustrative plans create two majority-Black districts, see **Exhibits O-1 and O-2** (CD 1), **Exhibits P-1 and P-2** (CD 2), **Exhibits Q-1 and Q-2** (CD 3) and **Exhibits R-1 and R-2** (CD7).

(a) Income

- African Americans in Alabama experience a poverty rate (27.4%) that is more than twice that of Whites (11.6%). (**Exhibit N-1 at p. 22 and Exhibit N-2 at p. 7**)
- The child poverty rate for African Americans is 40.4%, compared to 14.3% of White children. (**Exhibit N-1 at p. 22 and Exhibit N-2 at p. 7**)
- Black median household income is \$31,398, which is just 55.9% of White median household income is \$56,138. (**Exhibit N-1 at p. 14 and Exhibit N-2 at p.6**)
- Per capita income disparities in Alabama track the disparities seen in median household income. Black per capita income is \$18,229, compared to White per capita income of \$30,697. (**Exhibit N-1 at p. 17 and Exhibit N-2 at p. 7**)

²¹ In this section, as elsewhere in this report, “White” refers to NH White. Black or African American refers to Any Part Black.

- Over a quarter (27.6%) of Black households rely on food stamps, compared to 8.6% of White households. (**Exhibit N-1 at p. 15 and Exhibit N-2 at p. 11**)

(b) Education

- Of persons 25 years of age and over, 16.7% of African Americans have not finished high school, compared to 11.3% of their White counterparts. (**Exhibit N-1 at p. 5 and Exhibit N-2 at p. 3**)
- At the other end of the educational scale, for ages 25 and over, 17.1% of African Americans have a bachelor's degree or higher, compared to 28.6% of Whites. (**Exhibit N-1 at p. 5 and Exhibit N-2 at p. 3**)

(c) Employment

- The Black unemployment rate (for the population over 16, expressed as a percent of the civilian labor force) is 9.1% – about twice the 4.6% White unemployment rate. (**Exhibit N-1 at p. 11 and Exhibit N-2 at p. 5**)
- Of employed African Americans, 24.5% are in management or professional occupations, compared to 39.9% of Whites. (**Exhibit N-1 at p. 13 and Exhibit N-2 at p. 5**)

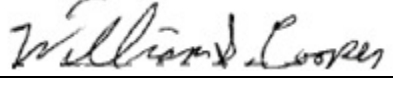
(d) Housing

- In Alabama, less than half of Black householders (49.2%) are homeowners, while over three-quarters of White households (76.7%) are owner-occupied. (**Exhibit N-1 at p. 21 and Exhibit N-2 at p. 7**)
- About one in eight of Black households (12.0%) lack access to a vehicle, while just 3.6% of White households are without a vehicle. (**Exhibit N-1 at p. 23 and Exhibit N-2 at p. 8**)
- Median home value for Black homeowners is \$92,200, which is just 59.3% of the median home value for Whites (\$155,600). (**Exhibit N-1 at p. 25 and Exhibit N-2 at p. 8**)

###

I reserve the right to continue to supplement my reports in light of additional facts, testimony and/or materials that may come to light.

Executed on: March 8, 2019


WILLIAM S. COOPER